WE CLAIM:

1. An electrical rotating machine comprising an external stator and a rotor having a geometrical axis of rotation and disposed inside the stator, the said stator embodying a laminated magnetic circuit compromising:

- a stack of yokes each made from a magnetic metal sheet and disposed substantially parallel to a plane perpendicular to the axis, the stack forming an external covering;
- a plurality of teeth disposed inside the covering, protruding towards the inside, the teeth each being made from a magnetic metal sheet and disposed substantially parallel to a plane perpendicular to the axis, the teeth being stacked and the stacks of teeth delimiting slots, the teeth being bound to the covering;

the slots being delimited on the radially outer side by the yokes, the slots being delimited in the circumferential direction by the side walls of the teeth, electrically conductive wires being disposed in the slots, and in which the covering is mounted such that it is bound to a sheath surrounding the covering on the outside thereof, a circuit for a cooling liquid being provided in the said sheath.

2. An electrical rotating machine according to Claim 1, including a stack of star-shaped metal sheets, each made from a magnetic metal sheet and disposed substantially parallel to a plane perpendicular to the axis, all the teeth appearing on each

star-shaped metal sheet, all the teeth being connected to one another by a partition closing the slot on the radially inner side of the slot.

3. An electrical rotating machine according to Claim 2, in which the partition on the radially inner side of the slot is less than 0.5 mm thick.

4. An electrical rotating machine according to Claim 2, in which the partition on the radially inner side of the slot is less than 0.4 mm thick.

5. An electrical rotating machine according to Claim 1, in which the teeth are bound to the external covering by gluing.

6. An electrical rotating machine according to Claim 5, in which an impregnating resin holds the electrically conductive wires fixed in the slots.

7. An electrical rotating machine according to Claim 5, in which an impregnating resin holds the electrically conductive wires fixed in the slots and the gluing of the teeth to the external covering is provided by the same resin as the impregnating resin.

8. An electrical rotating machine according to Claim 1, in which the sheath is bound to the covering by gluing.

9. An electrical rotating machine according to Claim 6, in which the sheath is bound to the covering by gluing and the gluing is provided by the same resin as the impregnating resin.

10. An electrical rotating machine according to Claim 1, in which the width of the slots, as measured between the side walls of adjacent teeth, does not decrease from the radially inner side of the slot to the wall of the covering.

11. An electrical rotating machine according to Claim 10, in which as seen from the radially inner side of the slot to the wall of the covering, the slots have a first part in which the width of the slots increases and a second part in which the width of the slots is substantially constant.

12. A process of manufacturing a stator of an electrical rotating machine having a laminated magnetic circuit supporting windings, comprising the following steps:

- cutting to star-shape metal sheets having a circular base and radial teeth protruding towards the outside and forming a single piece with the base,
- stacking these metal sheets onto a sleeve such that the teeth are superposed and a core is obtained which has, between the teeth, slots open towards the outside,
- winding the conductive wires in the slots,

and moreover

- cutting to annular shape metal sheets for the yokes, the dimensions of the yoke metal sheets and the star-shaped metal sheets being adapted to one another for stacking,

- stacking the yokes such that an external covering is obtained, and

then

- assembling the core supporting the windings and the external covering and binding them,
- removing the sleeve, and
- machining the bases in order to adjust the internal diameter of the stator.

13. A process according to Claim 12, in which the machining step allows a partition entirely closing off the slots.

14. A process according to Claim 14, having a stage of impregnating the conductive wires with a resin after they have been arranged in their final relative positions, in which the said resin binds the core and the covering.

15. A process according to Claim 14, including mounting the covering in an external sheath, in which the said resin binds the sheath and the covering.

16. A process according to Claim 12, including, before winding the conductive wires in the slots, a stage of inserting an insulating foil in each slot, the edges of each insulating foil projecting radially upwards from the teeth, the edges being turned back onto the winding after the latter has been formed and before assembly to the covering, the said edges partly overlapping one another.

17. An electrical rotating machine comprising an external stator and a rotor having a geometrical axis of rotation and disposed inside the stator, the said stator embodying a laminated magnetic circuit comprising:

- a stack of yokes each made from a magnetic metal sheet and disposed substantially parallel to a plane perpendicular to the axis, the stack forming an external covering;
- a plurality of teeth disposed inside the covering, protruding towards the inside, the teeth each being made from a magnetic metal sheet and disposed substantially parallel to a plane perpendicular to the axis, the teeth being stacked and the stacks of teeth delimiting slots, the teeth being bound to the covering;

the slots being delimited on the radially outer side by the yokes, the slots being delimited in the circumferential direction by the side walls of the teeth, electrically conductive wires being disposed in the slots, and having a stack of star-shaped metal sheets each made from a magnetic metal sheet and disposed substantially parallel to a plane perpendicular to the axis, all the teeth appearing on each star-shaped metal sheet, all the teeth being connected to one another by a partition closing the slot on the radially inner side of the slot.

18. An electrical rotating machine according to Claim 17, in which the covering is mounted such that it is bound to a sheath surrounding the covering on the

outside thereof, a circuit intended for the circulation of cooling liquid being provided in the said sheath.

19. An electrical rotating machine according to Claim 17, in which the partition on the radially inner side of the slot is less than 0.5 mm thick.

20. An electrical rotating machine according to Claim 17, in which the partition on the radially inner side of the slot is less than 0.4 mm thick.

21. An electrical rotating machine according to Claim 17, in which the teeth are bound to the external covering by gluing.

22. An electrical rotating machine according to Claim 21, in which an impregnating resin holds the electrically conductive wires fixed in the slots.

23. An electrical rotating machine according to Claim 21, in which an impregnating resin holds the electrically conductive wires fixed in the slots and the gluing of the teeth to the external covering is provided by the same resin as the impregnating resin.

24. An electrical rotating machine according to Claim 18, in which the sheath is bound to the covering by gluing.

25. An electrical rotating machine according to Claim 22, in which the sheath is bound to the covering by gluing and the gluing is provided by the same resin as the impregnating resin.

26. An electrical rotating machine according to Claim 17, in which the width of the slots, as measured between the side walls of adjacent teeth, does not decrease from the radially inner side of the slot to the wall of the covering.

27. An electrical rotating machine according to Claim 26, in which as seen from the radially inner side of the slot to the wall of the covering, the slots have a first part in which the width of the slots increases and a second part in which the width of the slots is substantially constant.